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Biological Activity of Typical Irrigated Gray Soils (On the Example of Tashkent Region)

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Abstract: The article examines some physiological groups of microorganisms (ammonifiers, oligonitrophiles, fungi) in the typical irrigated gray soils of Orta Chirchik district of Tashkent region.

Keywords: irrigated, gray, soil, farming, ammonifiers, oligonitrophiles, fungi mineral.

Introduction. Of all the agro-technologies used in agriculture today, soil microflora is not taken into account or denied at all. Soil microorganisms are the "living machines" of agriculture. Some species of microorganisms cause humus to form, while others break it down and turn it into minerals that plants can absorb. [1-5]

Effective microorganisms or EM technologies can help in the effective application of microorganisms and in solving environmental, energy and food problems related to agriculture. The purpose of EM technologies is to increase the activity and create conditions for beneficial microorganisms that can reduce harmful microflora, create a healthy environment for the soil and plants, increase soil fertility and crop yields. [6-10]

Our research was carried out on autrophic soils in Orta Chirchik district of Tashkent region.

Main part. In typical gray soils, the amount of microorganisms decreases under the influence of erosion processes. As a result of erosion processes, the amount of nutrients in the soil decreases and the activity of microorganisms slows down. It was observed that the amount of microorganisms in the soil varies depending on the amount of humus and nutrients and the degree of soil erosion. The use of the drug Bakal EM also had a positive effect on the amount of humus and nutrients in the soil (Table 1). [10-15]

Table 1. During the vegetation period of wheat in typical gray soils irrigated agrochemical properties

Option	Depth, cm	Humus, %	N-N0 ₃ mg/kg	P ₂ O ₅ mg/kg	K ₂ O mg/kg
1. Supervision	0-30	1,42	28,2	6,0	148
	30-50	1,09	26,3	4,0	115
2. Baikal EM1	0-30	1,46	36,3	3,3	115
	30-50	1,09	30,9	2,0	110

Table 2. The amount of microorganisms in typical gray soils irrigated

Cut №	Options	Depth, CM	Ammoni-fixators	Oligonitrofill ar	Actinomites	Zamburugs
Eroded soil, spring						
1	1-option	0-30	210 000	510	255	210
2		30-50	130 500	135	165	165
3	2-option	0-30	142 500	825	285	150
4		30-50	96 000	240	225	105
Moderately eroded, spring						
1	1-option	0-30	93 000	375	210	165
2		30-50	57 000	270	150	75
3	2-option	0-30	73 500	345	165	120
4		30-50	30 000	270	105	45
Eroded soil, summer						
1	1-option	0-30	130 000	150	95	30
2		30-50	36 000	18	60	20
3	2-option	0-30	140 00	170	120	40
4		30-50	93 000	160	80	25

1. option, control.

2. option, Baikal EM1 drug was used.

In order to study the amount of microorganisms in the conditions of typical gray soils, field experiments were carried out on winter wheat, samples were taken from the driving layer and the amount of ammonifiers, oligonitrophiles, actinomycetes, fungi was studied. The Baikal EM1 biopreparation was used in the experiment. [15-20]

It was also found that the use of this drug has a positive effect on the activity of microorganisms in typical irrigated gray soils. This is because the microorganisms in the Baikal EM1 biopreparation enrich the soil with various enzymes, physiologically active substances and increase their activity, as a result of which they absorb more nitrogen from the air and increase soil fertility. [21-23] The aqueous solution of lactic acid bacteria and yeast produces amino acids, organic acids, polysaccharides and vitamins necessary for plants. It also has the properties of strengthening the physiological processes of the cell, strengthening the immune system of the plant, increasing its biofungicide against diseases, improving the biological activity and fertility of the soil.[24-30]

During the study, high levels of microorganisms were found in the option of using the biopreparation in relation to soil control. At the same time, as a result of soil erosion, a decrease in their number was observed. In non-eroded soils, the amount of ammonifiers in the 0-30 cm layer was 142,500,000 (humus 1.46%), 510 oligonitrophils, 285 actinomycetes, and 150,000 fungi. This figure can be seen to decrease slightly in moderately eroded soils (Table 2). [30-35]

In terms of seasons, the number of microorganisms in the spring was higher than in the summer. This can be explained by the fact that during this period favorable conditions for the development of microorganisms occur and the plant is supplemented during the same period. [35-44]

Conclusion. In summary, the number of representatives of taxonomic groups of microorganisms is negatively affected by erosion processes on the one hand, and on the other hand, on hot days of the year, ie in summer. Among the microorganisms studied, actinomycetes had a significant effect on the

application of organic and biopreparations to any conditions. The use of biohumus and biopreparations had a greater effect on the number of actinomycetes bacteria, while the use of fertilizers and biogumus and biopreparations had a higher effect on the amount of fungi. Mineral fertilizers had a positive effect on the number of soil ammonifiers and oligonitrophils. High levels of bacteria were observed in all options. In general, the application of biohumus and biopreparation to the soil gave high yields.

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